B1 cont'd.

transposition). In the end zones (end winding), the bar is not transposed. This type of transposition compensates the field along the active part. However, it does not compensate the field components of the end winding.

Kindly replace Paragraph 0010 with the following:

B2

Preferred embodiments of the invention are disclosed in the following description and illustrated in the accompanying drawings, in which:

Fig. 1 shows a standard schematic illustration of the actually known 450° transposition according to *Willyoung* of a stator winding bar with 2 x 6 strands and the surfaces of two selected strands, which are effective for the external field, with the plus or minus signs that are important for the summation of the loop currents (the surfaces or respectively external field portions in the end windings are not compensated);

Fig. 2 shows the situation of the stator bar in Fig. 1 in relation to the inherent field;

Fig. 3 shows an illustration of an exemplary embodiment of a stator bar according to the invention, with extended middle part and resulting compensation of the external field portions in the end windings;

Fig. 4 shows the situation of the stator bar in Fig. 3 in relation to the inherent field; and,

Fig. 5 shows a comparison of the amplitudes of the strand currents in relation to the nominal value for the example of a stator winding bar with standard 450° transposition (graph a) and transposition according to the invention (graph b).

Kindly replace Paragraph 0011 with the following:

B3

Fig. 1 to 4 each show a side view of a stator winding bar 10 (Roebel bar) with a total of 2 x 6 = 12 strands 11,..,14. The stator winding bar 10 is positioned with an active part AT in the winding slot of the stator laminated core. Within the active part, the strands 11,..,14 undergo a transposition of 450°. End winding WK, in which the strands 11,...,14 are not transposed, border the active part AT on both sides. The active part AT is divided into a middle part MT and two border zones RZ of equal length that enclose the center part MT. In the center part, the transposition is 270°, in the border zones RZ 90° each.

Kindly replace Paragraph 0013 with the following:

B4

Reference number 11 stands for the 6 strands of the rear stack (in viewing direction); reference number 12 stand for the front stack. When the strands are located in the front during the transposition, they are drawn with continuous lines; when they are in the back, they are drawn with broken lines. A representative loop with strands 13 and 14 is in each case drawn with a thick line and is used to evaluate the transposition, whereby the plus or minus signs essential for the compensation are in each case entered. Two evaluations are made: first the external field analysis in Fig. 1 or Fig. 3 (surfaces within the loops must be added with the respective, correct plus or minus signs), and then the inherent field analysis in Fig. 2 or Fig. 4 (surfaces within the loops in relation to the center line 15 of the winding bar must be added with the respective, correct plus or minus signs). If the sum of all partial surfaces is zero, no circulating currents occur.

Kindly replace Paragraph 0014 with the following:

B5

As can be clearly seen from Fig. 1, the external field portions in the end windings WK, which penetrate the loop (drawn with thick line) of strands 13 and 14, are not compensated during the standard transposition. In contrast, the external field portions in the active part AT are all compensated.

Kindly replace Paragraph 0016 with the following:

B6

According to the invention, the formula of *Willyoung* regarding the length of the middle part MT for the 450° transposition is now changed to the effect that this section is extended beyond 3/4 of the length of the active part AT (the middle part MT still has a 270° transposition). In this way, the strands that carry most of the current, are kept near the slot bottom for a longer distance, and those that carry the least current are kept for a longer distance in the active part AT towards the slot opening. It is known that these conditions have a compensating effect on the current distribution in the Roebel bar. This transposition can be described as (0/450unv/0) (unv = incompletely compensated in active part, in order to compensate the residual field of the end winding).

Kindly replace Paragraph 0017 with the following::

According to Fig. 3, in such a stator winding bar with 450° transposition in the extended active part AT, the external field portions in the end windings WK that penetrate the loop (shown bold) of the strands 13 and 14, are compensated by the cross-wise striated (additional) portions 20 in the active part AT. The extension of the middle part MT is hereby

B6 cncl'd.

preferably chosen so that a maximum compensation is achieved. The residual external field portions in the active part AT are all compensated.

Kindly replace Paragraph 0019 with the following:

B7

If such a (0/450unv/0) transposition is performed for a two-pole turbo generator with a two-layer winding (consisting of bars with, for example, two stacks of strands; a total of 100 strands), significant improvements are achieved in comparison to the standard transposition according to *Willyoung*. Fig. 5 shows the amplitudes of the strand currents (related to the nominal value), at nominal load, on top of the number of the respective strand. Graph (a) hereby relates to the standard (0/450/0) transposition, graph (b) to the novel (0/450unv/0) transposition. It can be clearly seen that this invention is able to almost completely eliminate the circulating currents (max. strand currents are max. 20% above reference value). This provides a construction of a Roebel bar without end winding transposition that makes it possible to effectively suppress the circulating currents.

IN THE CLAIMS:

Kindly replace Claim 1 as follows:

B8

1. (Twice Amended) A stator winding bar for an electrical machine, comprising:

a plurality of strands arranged in stacks on top and next to each other;

an active part extending along a winding slot of the stator laminated core, said active part being adjoined on each of both sides by an end winding, whereby said active part is divided in length into a central middle part and two border zones of equal length enclosing